ABSTRACT

A STUDY ON EPIDERMAL GROWTH FACTOR RECEPTOR AND KI 67 EXPRESSION IN CORRELATION WITH GRADING OF GLIOMA

Introduction: Gliomas are the most common brain tumor in adults, accounting for about 70% of primary neoplasms of the central nervous system (CNS). The most frequent immunohistochemical findings associated with Grade III and IV gliomas are increased EGFR and Ki67 expression. The over expression of EGFR and Ki 67 have poor prognosis and decreased overall survival. Hence EGFR expression and Ki 67 evaluation have a further role in targeted therapy and management of high grade gliomas.

Aims & Objectives: The aim of the study was to evaluate the expression of EGFR and Ki-67 immunolabelling in gliomas. A correlation of EGFR and Ki 67 with WHO grading of gliomas, as well as histological parameters like necrosis and vascular proliferation, will provide a useful tool for diagnostic and therapeutic purposes.

Materials & Methods: A retrospective and prospective descriptive clinicopathological analysis of patients with Gliomas, was conducted in the Institute of Neuropathology, Rajiv Gandhi Government General Hospital. All cases with Gliomas between October 2015 to June 2017 were included in the study, and 50 cases out of these were randomly selected for EGFR and Ki 67 immunohistochemistry. The cases were analysed for their histological features, namely vascular proliferation, mitosis, necrosis. WHO grading of Gliomas was done, EGFR and Ki 67

immunohistochemistry was performed and positivity was assessed for both the markers.

Results: A total of 181 cases were collected between the study period. Out of the 50 cases analysed for Immunohistochemistry, 25 cases each were low grade (WHO grade I, II) & high grade (WHO grade III, IV) Gliomas. 100% of Grade III and 90.5% of Grade IV gliomas showed EGFR positivity with a significant difference from low grade gliomas (p=0.004). Ki 67 positivity was also seen to be increased in high grade gliomas in comparison with low grade gliomas (p=0.008). EGFR immunohistochemistry showed a sensitivity of 74.29% and specificity of 100% (95 %CI).

Discussion & Conclusion: Demographics and results of the study were found to be comparable to previous studies. EGFR and Ki 67 labelling was predominantly seen to be increased in higher grade gliomas with good specificity and sensitivity. The expression of EGFR was strongly associated with increase in Ki 67 labelling index, reflecting the increased mitotic activity of high grade tumors and proving the predictive value for identification of behaviour of these tumors, and thereby the prognosis. This further opens realms in targeted therapy of high grade gliomas.

Keywords: Glioma, Glioblastoma, EGFR, Ki 67, High grade, CNS tumors, immunohistochemistry.